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ABSTRACT

Hoffman's (1975) theory holds that altruism is based on cognitive development and mechanisms for empathic distress present from birth, with the individual going through stages of personal distress, empathic concern, and perspective taking. The Davis Interpersonal Reactivity Index (IRI), a measure of empathy, contains four subscales: personal distress, empathic concern, perspective taking, and fantasy. The Hoffman model was tested using a Guttman scale structure and latent class methods applied to IRI responses. This study examined what theoretically relevant variables discriminate among the four latent classes of the unidimensional empathy model for people for whom the model has meaning, and how these variables appear differently in individuals for whom the model does not reflect their socialization history. Data obtained from 94 college students who had completed the Nurturance and Succorance subscales from the Personality Research Form, the shortened form of the Marlowe-Crowne scale, and the Helping Orientation Questionnaire were analyzed. The unidimensional model of empathy was validated against measures of other relevant variables. More mature individuals by the Hoffman criteria scored higher in nurturance, succorance, and social responsibility. The model did not predict the pattern of responses to the IRI measure of empathy for approximately one-half of the subjects. Findings suggest that these unscalable types, who exhibited more nurturance and less succorance than the Hoffman types, were not typically low in prosocial traits relative to peers, but that they had arrived at their developmental stage by a different socialization route. (NB)

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The Nature of Empathy:

Discriminant Analyses

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Paper presented at the annual convention of the Midwestern Psychological Association, Chicago, May, 1987

The Nature of Empathy: Discriminant Analysis

MAJOR PURPOSE: A major theory of altruism which employs empathy as a basic concept was formulated by Hoffman (1975). That theory holds that altruism is based upon cognitive development and mechanisms for empathic distress present from birth beginning with a stage of personal distress, developing into one of empathic concern, and maturing with completion of a final stage of perspective taking. One measure of empathy, the Davis Interpersonal Reactivity Index (Davis, 1980), is composed of four subscales (personal distress, empathic concern, perspective taking and fantasy), the first three corresponding to variables in the Hoffman theory. If one assumes that only developing individuals who achieve some threshold value of PD or EC or PT move to the next stage, it is possible to test the Hoffman model assuming a Guttman scale structure and using latent class methods (Goodman 1974a, 1974b; programmed for the computer by Clogg, 1977) applied to responses from the IRI (Jegerski & Upshaw, 1986). Conducting such a test, we found that the Hoffman model was confirmed within the limits set by Bem and Allen (1974). Here a new data set is being analyzed to validate earlier interpretations.

As Bem and Allen have described (1974), the structure of a particular trait may be irrelevant to many individuals in a population even though the content of the trait may be highly relevant. Latent class analyses allow determination of individuals who fit the scale or pattern being tested and those for whom the model is irrelevant. The purpose of this study was to determine 1) what theoretically relevant variables discriminate among the four latent classes of the unidimensional empathy model for those people for whom the model has meaning, and 2) how do these variables appear differently in individuals for whom the model does not reflect their

PROCEDURE: In a study by Romer, Gruder, and Lizzadro (1986), 94 college students responded to a battery of tests including: the Davis IRI, the Social Responsibility Scale, the Nurturance and Succorance subscales from the Personality Research Form, the shortened form of the Marlowe-Crowne scale, and the Helping Orientation Questionnaire (Romer et al., 1986) which was constructed to measure four helping types --Altruists, Receptive-givers, Selfish, and Innersustaining persons. The authors generously made their data available to us.

These data were analyzed by first constituting latent classes by means of parameters estimated in a previous study with a sample of over 600 from the same population (Jegerski & Upshaw, 1986). Subjects were assigned scores on each of the four Davis subscales according to whether they were above or below the median for the subscale. Utilizing modal probability data from the earlier analysis, each person was assigned to a most likely latent class on the basis of the pattern of responses on the Davis subscales. There were four latent classes distinguished by the developmental stage that had been passed:

Class 1 - individuals who have matured on all traits

Class 2 - individuals who have matured on PD and EC but not PT

Class 3 - individuals who have matured on PD but not EC and PT

Class 4 - individuals who have not completed any of the stages

Class 5 - individuals for whom there is no systematic relationship among the subscales

Secondly, two forward-selection analyses were done. The first was designed to determine how best to discriminate among the four classes of the unidimensional empathy scale on the basis of those variables within the

data set that were not used to define the scale. The second was designed to determine how best to discriminate between the unscalable class, on the one hand, and a composite of all the scalable classes, on the other.

RESULTS: Fifty-four percent of the subjects were assigned to Class 1 through Class 4; 46% were assigned to the unscalable class by the latent class analysis (Table 1). With the criterion for selection into the discriminant function set at a chance probability of .10, nurturance, succorance, and social responsibility were selected in that order in three successive steps (Table 2). The altruism variable, which had had a substantial relationship to the latent classes before selection of the variables for the discriminat function (Table 3), was found to be redundant with the three variables that comprise the discriminant function.

The analysis of the scalable vs. unscalable classes indicated that nurturance and succorance discriminated between them; the unscalable were higher on nurturance and lower on succorance than the composite class of scalables.

CONCLUSION: The unidimensional model of empathy was validated against measures of other relevant variables. More mature individuals by the Hoffman criteria were those who scored higher in nurturance, succorance, and social responsibility. For approximately half the subjects, the model did not predict the pattern of responses to the IRI measure of ampathy. The unscalable types, however, are not typically low in prosocial traits relative to their age peers. They may even be more morally developed because they exhibit more nurturance and less succorance than the Hoffman types. Instead, they are individuals who have arrived at their current young adult stage by a different socialization route.

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Table 1

Latent Class Assignments with Class Means on Several Variables

Class[a]	Proportion of Sample	NUR	SUC	MCS	RESP	ALT	REC	INS	SEL
1	.11	11.70	10.60	5.10	5.29	0.22	0.26	-0.36	-0.26
2	.17	11.19	9.38	3.94	5.41	0.30	-0.15	-0.10	-0.23
3	.16	8.60	9.47	3.53	4.78	-0.56	0.25	0.08	0.55
4	.10	7.56	5.33	4.44	4.89	-0.37	0.08	0.04	0.46
5	.46	10.98	7.35	4.51	5.17	0.76	-0.11	0.13	-0.14
Composite of Class 1-4	.54	9.86	8.92	4.14	5.10	-0.09	0.09	-0.07	0.12

[a]Classes 1-4 form a unidimensional scale of empathy with Class 1 defining the highest level. Class 5 is the unscalable class for whom the items are independent.

Table 2

Summary of 3-Step Forward-Selection Discriminant Analysis

Step No.	Variable Entered	# of Variables Entered	Partial R^2	F	P	Canonical Correlation	P
1	NUR	1	0.31	6.92	0.0006	.32	0.0006
2	SUC	2	0.21	3.95	0.0139	.41	0.0001
3	RESP	3	0.17	2.98	0.0417	.46	0.0001

Table 3

Squared Partial Correlation Coefficients Prior to Analysis Between Empathy Scale Classes vs. Nonscale Classes and Several Variables

Variable	Squared Partial Correlation	F (3,46)
NUR	0.31	6.92***
SUC	0.28	5.94**
MCS	0.12	2.08
RESP	0.24	4.76**
ALT	0.20	3.94*
REC	0.03	0.53
INS	0.05	0.75
SEL	0.13	3.19

*p < .05
**p < .01
***p < .001